

# B1000 INTEGRATED AMPLIFIER OWNER'S MANUAL

For models **B100, B100-DA & B100-P** 

#### **IMPORTANT SAFETY INSTRUCTIONS**



The lightning flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage " within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

- 1. Read these instructions.
- 2. Keep these instructions.
- 3. Heed all warnings.
- 4. Follow all instructions.
- 5. Do not use this apparatus near water.
- 6. Clean only with dry cloth.
- 7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (includ ing amplifiers) that produce heat.
- 9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11. Only use attachments/accessories specified by the manufacturer.
- 12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used use caution when moving the cart/apparatus combination to avoid injury from tip-over.



- 13. Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not oper ate normally, or has been dropped.

"WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE".

"DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, ARE PLACED ON THE EQUIPMENT".

"TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE".

"THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE".



#### INTRODUCTION:

Thank you for purchasing a Bryston B100 integrated amplifier. We are confident it will provide you with many years of musical enjoyment. We would welcome any suggestions or comments you may have regarding the operation of your Bryston amplifier.

In the unlikely event that your amplifier may require service Bryston recommends that you retain the original shipping box and packaging material for future use if required.

#### **SETUP RECOMMENDATIONS:**

You may place your B100 integrated amplifier in any convenient location. Make sure you position the amplifier to maintain a direct line-of-sight between the hand-held remote and the remote sensor eye located on the front panel. If plugged in the B100 will remain in standby indicated by the RED power LED on the front panel.

The amplifier is powered up by engaging the power button located on the front panel of the B100 or by depressing the *POWER* button on the hand held remote control unit. The B100 will power-up momentarily with mute engaged, indicated by the mute LED turning red on the front panel; it will then turn off within a few seconds. The *POWER* LED will stay lit green indicating normal operation.

#### **CONNECTIONS:**

#### LOUDSPEAKERS:

Connect your loudspeakers, ensuring that the positive (red) and ground (black) terminals (gold-plated 5-way binding posts) on the Bryston B100 integrated amplifier are connected to the positive and ground terminals on your loudspeakers. Make certain the left and right speaker outputs on the amplifier are connected to your appropriate left and right loudspeakers.

#### **SEPARATE PRE-AMP OUT & POWER AMP IN JACKS:**

These two pair of RCA jacks allow for the independent use of the stereo amplifier section within a multi-channel audio or video system. On the rear panel there are connections labeled 'PRE AMP OUT' (preamplifier output) and 'POWER AMP IN' (power amplifier input) along with two slide switches (one per channel) labeled "Separate/Connect". This feature allows you to "separate or connect" the preamplifier section of the B100 from the power amplifier section thus producing a separate stereo preamp and separate stereo power amplifier.

#### **WIRED (SERIAL DATA) REMOTE CONTROL:**

There is one RS-232, one AUX IR input and two 12 volt trigger output connections as well. The RS-232 is bidirectional and allows for future software downloads from the Bryston website. It also interfaces with control systems such as Crestron and AMX.

#### CHASSIS GROUND:

A chassis ground thumb screw terminal is provided on the rear panel.

#### 12 VOLT TRIGGER CONNECTOR:

These 12Vdc control outputs allow the B100 to exert on/off control over compatible equipment. See "REMOTE POWER CONTROL" for more information..

#### LINE LEVEL ANALOG AUDIO INPUTS:

The Bryston B100 integrated amplifier comes equipped with 8 pairs of gold plated analog RCA input connectors: *TV*, *CD*, *AUX-1/PHONO*, *AUX-2/SPDIF*, *VIDEO*, *TUNER*, *RECORD IN* and *POWER AMP IN*. All have and input impedance of 50K ohms

- POWER AMP IN is normally connected, internally, to PRE AMP OUT via the CONNECTED/SEPARATE slide switch
  located on the rear panel. When this switch is in the SEPARATE position, however, any line level audio
  input can be used at the POWER AMP INPUT jacks to drive the amplifier.
- In B100-DA models the AUX2 (D1/D2) input jacks accept only SPDIF PCM bit streams. They do NOT accept



analog audio input signals.

• In B100-P models, which are equipped with a moving-magnet phono equalization module, the inputs labeled *AUX1/PHONO* accept moving magnet phono cartridge inputs. These inputs are NOT line level inputs in the B100-P and cannot be used as such.

#### **LINE LEVEL ANALOG AUDIO OUTPUTS:**

The Bryston B100 integrated amplifier comes equipped with 2 pairs of gold plated analog RCA jacks for outputs: **PREAMP OUT** and **RECORD OUT**.

- PREAMP OUT is normally connected, internally, via the CONNECTED/SEPARATE switch, to POWER AMP IN
- RECORD OUT output is not affected by volume, balance or mute controls.

#### **DIGITAL AUDIO INPUTS:**

In the B100-DA model, which contains a stereo D/A converter module, there are 4 digital audio inputs available.

Two **TOSLINK** optical inputs are selected by pressing the **D3** (TOSLINK-1) or **D4** (TOSLINK-2) buttons on the front panel (when in digital mode) or on the handheld remote.

Two **SPDIF** coaxial inputs can be connected to the B100-DA using the RCA input jacks labeled **D1** and **D2**. To select these inputs first place the unit in digital mode by pressing the **DIGITAL** > **Select** button on the front panel (or the A/D button on the handheld remote) and then press the **D1** or **D2** button on the front panel or on the remote). When the green LED above the font panel **DIGITAL** > **SELECT** switch button in ON concurrently with either the **D1** (CD), **D2** (TUNER), **D3** (TV) or **D4** (VIDEO) LEDs, then digital mode is engaged.

**Note:** Whatever digital input was previously selected in *Digital Mode* will be automatically reselected upon re-entering *Digital Mode* (from *Analog M*ode). Similarly, when re-entering *Analog Mode* from *Digital Mode* the previously selected analog input will be automatically re-selected.

See also the *DIGITAL-to-ANALOG CONVERTER OPTION* section for more information.

#### **HEADPHONE JACK:**

There is a quarter inch headphone output jack available on the front panel of the Bryston B100 integrated amplifier. The headphone output is driven directly from the preamplifier section utilizing separate headphone buffers. Inserting the headphone jack mutes the loudspeakers automatically (indicated by the mute LED on the front panel turning red). The B100 **PREAMP OUT** is also muted.

You can adjust the volume setting of the headphones by using the volume control on the front of the B100 integrated amplifier. You may also utilize the remote control unit to adjust headphone volume. The headphones cannot be muted with the remote control unit or the front panel Mute. Only headphones with impedances of greater than 50 ohms should be used.

#### **AUXILIARY IR INPUT:**

This mono 1/8" (3mm) phone jack allows a direct connection to equipment whose remote control system provides an output from their infra-red LED drive circuit. The signal connected to this jack, which is expected to be a 5 volt logic level, should be  $\geq 2.5 \text{Vdc}$  and  $\leq 10 \text{Vdc}$ . The *tip* of the phone jack is positive (+) and the *ring* is negative (-).

#### **LED STATUS INDICATORS:**

**CLIPPING:** This LED (light emitting diode) will flash RED when the output waveform is clipped thus

indicating an overload condition.

**MUTE:** Lights RED to indicate the outputs are muted..

**POWER**: GREEN indicates normal operation

**RED** indicates Standby

Blinking RED/GREEN a fault or thermal overload problem in the unit.



#### ANALOG ➤ Aux2 / DIGITAL ➤ Select:

In B100-DA models: when this LED is illuminated green concurrently with either *D1*, *D2*, *D3* or *D4* LEDs, it indicates that the digital inputs *D1* (SPDIF), *D2* (SPDIF), *D3* (TOSLINK) or *D4* (TOSLINK) have been selected.

In B100 & B100-P models: when illuminated green this LED indicates that the line level analog audio input *AUX-2* has been selected.

#### AUX1, CD, TUNER, TV/SAT VIDEO & RECORD:

One of these input source LEDs will light green to Indicate the active input. In digital mode these LEDs will light RED if the bit stream is either absent or unacceptable.

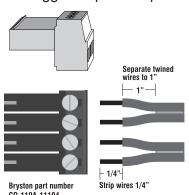
#### **BALANCE**

When the left/right signal balance is being shifted one of these LEDs will light to indicate which channel is being attenuated. Balance can be adjusted in 1dB increments to up to -6dB in either direction. Stepping past -6dB in either direction will mute that channel fully and the LED for that channel will turn red.

When both LEDs are on (red), PASS THROUGH mode is indicated. (See "Pass Through Mode" on page 4)

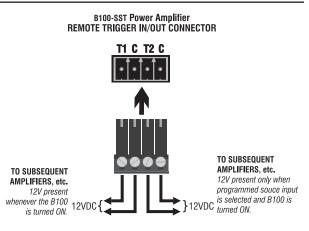
#### **REMOTE POWER CONTROL ~ 12 VOLT TRIGGER CONNECTOR:**

Two trigger outputs are provided. A 12Vdc signal is placed across



the *T1* and *C* pins of the *12V TRIGGERS* connector whenever the unit is fully powered up. Then the unit goes into standby this voltage is removed.

A 12Vdc signal will be placed across the other pair of 12V TRIGGER output pins (T2) whenever a certain user programmed input is selected as the source input (see below for programming instructions).



When any other input source is selected the 12Vdc control voltage will be removed from these pins. Please note that  $\boldsymbol{c}$  means "common" here and both  $\boldsymbol{c}$  pins are electrically connected and identical.

#### CODE $\overline{\bigcirc}$ VOL MUTE 1 2 TUNER (3) 4 (5) 6 7 (0) 8 9

#### PROGRAMMING the "T2" 12v TRIGGER OUTPUT:

By default the 72 triggered output is inactive. To program this output to become active, whereupon a control voltage of 12Vdc will appear across 72 & C terminals whenever a specific source is selected, use the handheld remote control as follows:

- Select the source that you want to coincide with **72** going active.
- While pointing the remote control at the B100, press the *CODE* button, followed by the three digit code "247" using the keys numbered 1 through 0 in the illustration at the left. On your remote control these keys, or buttons, are labeled *AUX/PH* (2), *TUNER* (4), *D1* (7).
- The three digit code should be entered within a few seconds of pressing CODE button or the unit will automatically return to normal operation.
- To clear the T2 trigger output, press the CODE button followed by the 3 digit code "248":
   AUX/PH (2), TUNER (4), D2 (8).

#### HAND-HELD INFRA-RED REMOTE CONTROL:

The Bryston model B100 comes standard with a full function hand-held remote control unit. The hand held remote unit is powered by two "AAA" batteries. To change the battery remove the bottom cover plate by removing the four Philips screws on the rear of the remote unit. Ensure that the



batteries are correctly oriented and properly seated in the battery holder.

The B100 remote is a full function remote. It allows selection of all sources, volume up or down (the volume control is a motor-driven design), mute ,left/right balance, power on/off and discrete code entry.

We recommend maintaining a direct line-of-sight between the hand held remote unit and the front of the B100 to ensure the most efficient operation of the remote features.

#### PROGRAMMING the HANDHELD REMOTE CONTROL:

The automatic motion-sensing backlight function in the handheld infra-red remote control unit can be disabled by entering the 3 digit code "792" as follows:

- 1) Press and hold the CODE button for 5 seconds. Release when the LED flashes red.
- 2) After the LED stops flashing, enter the 3 digit code "792" by pressing the buttons **D1**, **D3** then **AUX/PH** (see illustration on page 3)
- 3) To re-enable the motion-sensing backlight function, repeat steps 1 and 2 above

To completely disable the backlight, enter the 3 digit code "797" as follows:

- 1) Press and hold the CODE button for 5 seconds. Release when the LED flashes red.
- 2) After the LED stops flashing, enter the 3 digit code "797" by pressing the buttons **D1**, **D3** then **D1** (see illustration on page 3)
- 3) To re-enable the backlight repeat steps 1 and 2 above

#### **SENDING CODES to the B100 via the IR HANDHELD REMOTE CONTROL:**

Press the CODE button on the remote control (the red LED will light) and then enter the 3 digt code, as listed in the "Wired RS232 Remote Control" section" below. The LED will flash to confirm transmission and then extinguish.

#### **WIRED RS232 REMOTE CONTROL:**

Using the DB9-female connector at the rear of the unit, the B100 can receive commands via a null modem cable at 9600 baud, 8 data bits, no parity and 1 stop bit (9600,8,N,1). Valid commands will return the ">" character indicating that the unit is ready to receive a new command. An invalid command will return the "!" character. These serial data commands are as follows:

000 - power off	015 - power on/off toggle	081 - select digital source 1 (D1)
001 - select analog source 1 (A/D)	019 - balance left	082 - select digital source 2 (D2)
002 - select analog source 2 (AUX/PH)	020 - balance right	083 - select digital source 3 (D3)
003 - select analog source 3 (CD)	029 - power on	084 - select digital source 4 (D4)
004 - select analog source 4 (TUNER)	058 - mute on	245 - set/reset Pass Through mode
005 - select analog source 5 (TV)	059 - mute off	247 - Set Trigger 2 for current source
006 - select analog source 6 (VIDEO)	061 - record monitor toggle	248 - Clear <i>Trigger</i> 2 for current source
007 - volume up	062 - record monitor on	255 - System reset; restore defaults
008 - volume down	063 - record monitor off	

#### **PASS THROUGH MODE:**

PASS THROUGH mode sets the pre-amp gain to 1 (unity gain) and locks out the volume & balance controls for any single analog audio source. For example, if the Front Left and Front Right outputs of a home theater surround sound processer were connected to the *TV* input of the B100, and then *PASS THROUGH* was engaged then whevever *TV* input is selected the volume and balance controls would be locked at unity gain. If other inputs were subsequently selected, volume and balance controls return to normal operation for those other input sources. Only the TV inputs would be locked at unity gain. PASS THROUGH mode, therefore, can only be assigned to one input at a time, but that input can be any one of the analog audio inputs. The power amplifier stage is not affected by PASS THROUGH mode. PASS THROUGH mode can only be set (or reset) by sending the 3 digit code "245" to the B100 either from the handheld IR remote control or via the RS232 serial data input. See "Sending Codes to the B100 via the IR Handheld



Remote Control" & "Wired RS232 Remote Control". To reassign PASS THROUGH mode to a different input source simply select the desired input and re-send the "245" code to the B100. To turn the deactivate PASS THORUGH mode, select the current *Pass Through* input and then send the "245" code to the B100. The "245" toggles PASS THROUGH mode on and off.

#### **DIGITAL-to-ANALOG (D/A) CONVERTER OPTION:**

The B100-DA comes equipped with stereo Digital-to-Analog converter (D/A or DAC) module. This module is also retrofittable to standard B100 units.

A unique feature of the B100-DA is its ability to utilize up to four independent digital sources (two SPDIF and two TOSLINK). These four digital inputs can be accessed by selecting *D1*, *D2*, *D3* and *D4* sources with the DAC feature enabled (by pressing the *DIGITAL* > *Select* button on the left end of the front panel).

Activate the DAC feature by pressing the **DIGITAL** > **Select** (AUX 2) button on the left side of the front panel (or **A/D** on the remote). The LED below the **DIGITAL** > **Select** button will turn Green. Pressing any of the following four buttons will cause their LEDs to light green, as well, to indicate a PCM digital source is present and connected properly.

- SPDIF 1 is accessed by selecting **D1** on the front panel or the remote.
- SPDIF 2 is accessed by selecting **D2** on the front panel or the remote.
- Optical 1 is accessed by selecting D3 on the front panel or the remote.
- Optical 2 is accessed by selecting **D4** on the front panel or the remote.

The source LED's will turn GREEN when a PCM digital bit stream is present. If there is no bit stream available or an incorrect bit stream (NON-PCM) the LED will turn RED.

You may re-select Analog by simply depressing the **DIGITAL** > **Select** (AUX 2) button once more and the LED will extinguish.

All of the above functions are available from the hand held remote control as well .

#### **MOVING-MAGNET PHONO STAGE OPTION:**

The B100-P contains a *moving magnet* phono stage. The Phono Stage is modular and can be added to the standard B100 model later if required by your Bryston dealer.

Bryston's MM Phono section features state-of-the-art accuracy in equalization, extremely low noise and distortion, and provides headroom margins sufficient to prevent overload from any known phono source. To access the Phono section simply plug your left/right turntable interconnect leads into the left/right AUX-1/PHONO inputs on the rear panel of the B100 and press the AUX-1/PHONO button on the front panel. The AUX-1/PHONO LED will turn green. If your turntable provides a separate ground lead, system noise may be minimized by connecting it to the ground lug in the center of the rear panel.

#### **B100 SPECIFICATIONS:**

#### **POWER AMPLIFIER SECTION:**

**Power Output:** 100 watts per channel into  $8\Omega$ 

180 watts per channel into  $4\Omega$ 

Input Impedance: 50K ohms single ended
Sensitivity: 1v = 100 Watts into 8 ohms

**Distortion:** THD+noise: < 0.005% 20Hz to 20kHz at 100

watts into 8 ohms.

**IMD:** < 0.010% 60Hz + 7KHz mixed 4:1 **Noise:** >108dB below rated output (with 20Hz to

22KHz bandpass filter)

Slew Rate: >60 volts per microsecond Power Bandwidth: <1 Hz to over 100 kHz

Damping Factor:Over 500 at 20 Hz, ref. 8 ohmsPower consumption:idle 30va, maximum power 600va

Heat load: idle 100 btu/hr., max power 288 btu/hr

#### PREAMPLIFIER SECTION:

Frequency response: 20Hz to 20KHz, ±.05dB

IMD or THD: <.007% High Level Sensitivity: 500mV

**Noise:** 100dB @ 20Hz to 20KHz

(ref: 1V input)

**GENERAL:** 

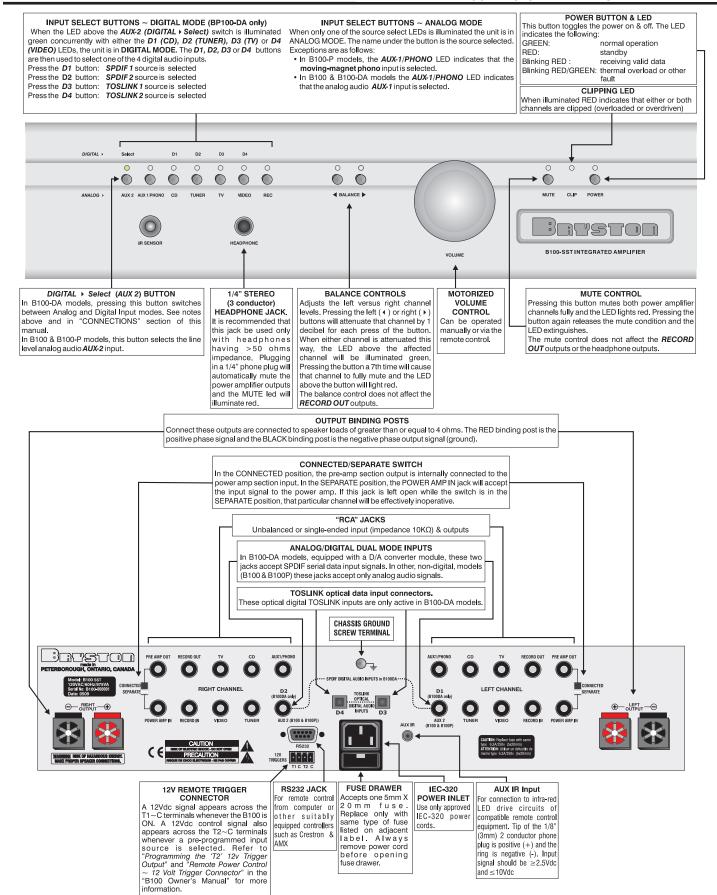
**Dimensions**: 17" or 19"w x 4.75"h x 16"c

43.2 or 48.3mm wide x 12.1mm high x

40.6mm deep

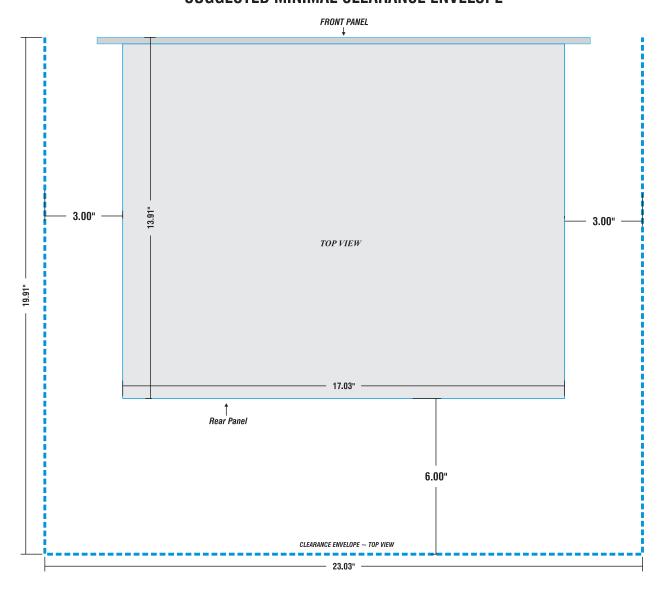
Weight: approx. 30 lbs (13.6kg.)

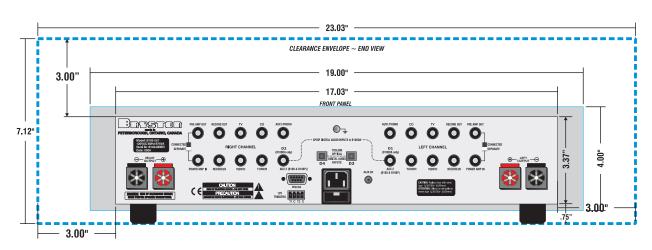






## **B100 INSTALLATION**SUGGESTED MINIMAL CLEARANCE ENVELOPE







### **BRYSTON LIMITED WARRANTY**

Bryston audio circuits are warranted to be free from manufacturing defects for twenty (20) years from the original date of manufacture. The warranty includes parts and labour.

Bryston Digital circuits are warranted for five years from the original date of manufacture. The warranty includes parts and labour.

Bryston circuits having motorized moving parts are warranted for three years from the original date of manufacture. The warranty includes parts and labour.

Bryston will remedy the problem by repair or replacement, as we deem necessary, to restore the product to full performance. Bryston will pay return shipping during the first three years of warranty coverage.

The warranty is fully transferable to the original owner and all subsequent owners during the warranty period. Warranty coverage is automatic and commences with the original date of manufacture which is kept on file at Bryston.

In the event of a defect or malfunction, contact Bryston's repair centers for return authorization.

Products must be returned using original packaging material only. Packing material may be purchased from Bryston if necessary.

This warranty is considered void if the defect, malfunction or failure of the product or any component part was caused by damage (not resulting from a defect or malfunction) or abuse while in the possession of the customer. Tampering by persons other than factory authorized service personnel, or failure to fully comply with Bryston operating instructions, voids the warranty.

This warranty gives you specific legal rights and you may also have other rights which may vary from province to province and country to country.

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